

(B) copper ions, copper metal, or a mixture thereof.

45. (NEW) A polyamide material comprising:

(A) a crosslinked polymeric material formed by a process comprising:

(i) reacting a reaction mixture comprising a monomer selected from maleic anhydride, maleic acid esters, and mixtures thereof, and an amine having the formula $R-NH_2$ to form an intermediate reaction product, wherein R contains between 1 and 50 carbon atoms and is optionally substituted with heteroatoms oxygen, nitrogen, sulfur, phosphorus, and combinations thereof; wherein at least a portion of the R groups are substituted with an amino group; and

(ii) reacting the intermediate reaction product and the amine to form a polyamide; and

(iii) reacting the polyamide with a crosslinking agent to form a crosslinked polymer, wherein the crosslinking agent includes at least two functional groups capable of reacting with amino groups; and

(B) copper ions, copper metal, or a mixture thereof.

46. (NEW) A polyamide material comprising:

(A) a polymer prepared by a process comprising:

(i) reacting a reaction mixture comprising a monomer selected from maleic anhydride, maleic acid esters, and mixtures thereof, and an amine having the formula $R-NH_2$ to form an intermediate reaction product, wherein R contains between 1 and 50 carbon atoms and is optionally substituted with heteroatoms oxygen, nitrogen, sulfur, phosphorus, and combinations thereof, wherein at least a portion of the R groups are substituted with an amino group; and

(ii) reacting the intermediate reaction product and the amine to form a polyamide; and

(B) silver ions, silver metal, or a mixture thereof.

47. (NEW) A polyamide material comprising:

(A) a crosslinked polymeric material formed by a process comprising:

(i) reacting a reaction mixture comprising a monomer selected from maleic anhydride, maleic acid esters, and mixtures thereof, and an amine having the formula $R-NH_2$ to form an intermediate reaction product, wherein R contains between 1 and 50 carbon atoms and is optionally substituted with heteroatoms oxygen, nitrogen, sulfur, phosphorus, and combinations thereof; wherein at least a portion of the R groups are substituted with an amino group; and

(ii) reacting the intermediate reaction product and the amine to form a polyamide; and

(iii) reacting the polyamide with a crosslinking agent to form a crosslinked polymer, wherein the crosslinking agent includes at least two functional groups capable of reacting with amino groups; and

(B) silver ions, silver metal, or a mixture thereof.

48. (NEW) A polyamide material comprising:

(A) a polymer formed by a process comprising:

(i) reacting a reaction mixture comprising a monomer selected from unsaturated carboxylic acids, esters of unsaturated carboxylic acids, anhydrides of unsaturated carboxylic acids, and mixtures thereof, and an amine having the formula $R-NH_2$ to form an intermediate reaction product, wherein at least a portion of the R groups are substituted with an amino group; and

(ii) reacting the intermediate reaction product and the amine to form a polyamide; and

(B) an antimicrobial agent selected from a metal, a metal alloy, a metal salt, a metal complex, or mixtures thereof.

49. (NEW) A polyamide material comprising:

(A) a crosslinked polymeric material formed by a process comprising:

(i) reacting a reaction mixture comprising a monomer selected from unsaturated carboxylic acids, esters of unsaturated carboxylic acids, anhydrides of unsaturated carboxylic acids, and mixtures thereof, and an amine having the formula $R-NH_2$ to form an intermediate reaction product, wherein R is substituted with at least one amino group; and

(ii) reacting the intermediate reaction product and the amine to form a polyamide; and

(iii) reacting the polyamide with a crosslinking agent to form a crosslinked polymer, wherein the crosslinking agent includes at least two functional groups capable of reacting with amino groups; and

(B) an antimicrobial agent selected from a metal, a metal alloy, a metal salt, a metal complex, or mixtures thereof.

50. (NEW) The polyamide material of claim 49 wherein the monomer comprises maleic anhydride, maleic acid esters, or mixtures thereof.

51. (NEW) The polyamide material of claim 49 wherein the antimicrobial agent includes chelated silver ions, silver metal, chelated copper ions, copper metal, chelated zinc ions, zinc metal, or mixtures thereof.

52. (NEW) A polyamide coated article comprising:

a substrate; and

a coating on a surface of the substrate, wherein the coating comprises the polyamide material of claim 49.